



Service/Product Provider

Armstrong International, Inc.

816 Maple Street, Three Rivers, MI 49093

Business: Steam, air & hot water systems

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Industrial Partner

Pfizer Inc.

738 E. Gull Lake Drive, Augusta, MI 49012

Business: Pharmaceutical manufacturing

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A decade-long relationship between Armstrong and Pharmacia/Pfizer saves over \$1 million with repeated paybacks, each less than one year.

Project Scope

Armstrong helped a former Pharmacia manufacturing facility, since acquired by Pfizer, to develop a steam trap management process and provided products and services over a ten-year period resulting in savings of over \$1 million.

Project Summary

In the first year of project implementation, Armstrong provided software, steam trap products, training, and manpower to analyze traps. Initially, Pharmacia managed the program. Recently, Armstrong has provided that manpower as well, and increased the scope of Armstrong's responsibility to provide on-site steam system troubleshooting.

- **Energy Savings**

First year's savings equaled \$479,000 from a reduction of 95 million pounds of steam-- each subsequent years' savings will be between \$50,000-\$100,000

- **Investment**

Initial investment of \$110,000 for all related costs, each subsequent year achieving a positive cash flow comparing costs to savings

- **Financial Return**

Initial payback less than *three months* with recurring paybacks in subsequent years less than one year

- **Other Benefits**

In a few locations, production times were improved by repairing plugged traps that impeded steam flow.

Monitoring & Verifying Energy Savings

Special steam trap maintenance software was used to calculate steam losses from "failed-open" steam traps, which were causing half of all steam losses from high pressure traps (>150 psi). The software reflected pressures, trap orifice sizes, and the cost of steam in calculating losses.

Distinguishing Value

The software output enabled the steam trap testing results to be examined thoroughly, empowering managers to optimize the ongoing steam trap maintenance process. An ongoing process was set up to annually test the high-pressure traps and traps on critical operations, and periodically test non-critical traps. In addition, Armstrong provided local training for the plant's engineers and maintenance mechanics. Pfizer reported product support has been outstanding.